SNC1P **UNDERSTANDING METRICS**

* Most countries use metric units. Metric units include the gram, kilogram, metre, and centimetre. Scientists also use the metric system. In science, you will use mostly metric units.
* In the United States people usually use old imperial units of measurement such as ounces, pounds, inches, and feet.

**MASS & WEIGHT**

Mass and weight are related, but they are not the same. Mass is a measure of the amount of matter in an object. Weight is a measure of the pull of gravity on an object. The basic unit of mass in the metric system is the kilogram (kg). Mass is measured with a balance



1. The mass on the triple beam balance may be written as \_\_\_\_\_\_\_\_\_\_g
2. Use a triple beam balance to measure the items on the *Mass Lab Table* and record in grams

Chalk \_\_\_\_\_g Beaker \_\_\_\_g Mr McCormack’s Hall Pass \_\_\_\_\_\_g

1. Explain briefly any reasons for error with your results. How could you improve the accuracy?

**LENGTH**

Length is measured with a metric ruler. The basic metric unit of length is the metre (m). A combined metric and inch ruler is shown on the next page. On the metric side of the ruler the distance between numbered lines is equal to one centimetre. Each centimetre is divided into 10 equal parts. Each one of these parts is equal to one millimetre



1. The length at A may be written as 45 mm. It may also be written as \_\_\_\_\_\_\_\_\_cm.

2. The length at B may be written as \_\_\_\_\_\_\_\_\_mm or \_\_\_\_\_\_\_\_\_\_cm

3. Use a ruler to measure the items on the Length Lab Table and record in cm & mm.

Ten Pennies \_\_\_\_\_\_\_\_\_\_cm \_\_\_\_\_\_\_\_\_\_\_mm

Unsharpened Pencil \_\_\_\_\_\_\_\_\_\_cm \_\_\_\_\_\_\_\_\_\_\_mm

**VOLUME**

Volume is a measure of the amount of space an object takes up - how big an object is in all three directions.

The litre (L) is the basic unit of volume in the metric system.

The volume of liquids is measured in a graduated cylinder.

A graduated cylinder is a glass tube that is marked with divisions to show the amount of liquid in it.

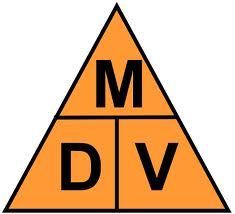
To measure liquid volume, you should place the graduated cylinder on a flat surface and read the level of the liquid at your eye level.

The surface of the liquid will have a “belly-down” curve. You should read the mark that lines up with the bottom of the curve

1. Use a graduated cylinder to measure the items on the Volume Lab Table and record in cm3

Orange \_\_\_\_\_\_\_\_\_cm3 Red \_\_\_\_\_\_\_\_\_cm3 Green \_\_\_\_\_\_\_\_\_cm3

**DENSITY**



Density is a physical property of matter. Each substance has its own characteristic density. This explains why

some materials “float” or “sink” in a liquid. The less dense materials are suspended above the more dense objects.

For example, since water has a density of 1.0 g/cm & ice has a density of 3 0.92 g/cm3, ice will float in water. **[REMEMBER THE COKE V DIET COKE DEMONSTRATION WE DID IN CLASS]** . You calculate density by dividing the mass of an object by it’s volume 🡺 D = M/V